

Anti-Degradation Pre-Rulemaking Meeting #4

Cumulative Impacts,
Alternatives Analysis,
Socio-economic Justification Analysis,
& Public Participation

Vermont DEC

March 30, 2010 – Skylight Conference Room,
Waterbury, VT

Agenda

- Introductions
- Definitions and Concepts
- Stormwater
- River Management
- Wetlands
- Shoreland Encroachment

Topics for Discussion Today

- Assessing Degradation - Cumulative Impacts
- Alternative Analysis
- SEJ Analysis
- Intergovernmental Coordination and Public Participation



Assessing Degradation – Consideration of Cumulative Impacts

Cumulative Impacts

- Cumulative impacts are assessed to determine assimilative capacity during Tier 2 review
- Cumulative impacts consider:
 - Nature of resource impacted – e.g. stream, lake, wetland, watershed
 - Prior permitted and unpermitted activities/discharges in stream, lake, wetland, watershed
 - Effect of proposed activity/discharge

Cumulative Impacts

- EPA guidance
 - Cumulative impacts should be considered where multiple de minimis loadings are allowed (Region 5, Office of Science and Technology)
 - Cumulative impacts should be based on total assimilative capacity (Region 5, Office of Science and Technology)

Cumulative Impacts

- Related litigation
 - Ohio Valley Environmental Coalition, et. al. v. Marianne Lamont Horinko, 2003
 - 10% reduction in available assimilative capacity before Tier 2 review is required was deemed reasonable
 - 20% cumulative reduction from all discharges before Tier 2 review is required was considered arbitrary and capricious

Cumulative Impacts

- Related litigation
 - Kentucky Waterways Alliance, et. al. v. Stephen L. Johnson, 2008
 - Remanded back to EPA six exemptions to Tier 2 review.
 - Exemptions included <20% increase in pollutant loading considered de minimis
 - Cumulative impacts must be taken into consideration where “insignificant” (de minimis) degradation is allowed

Cumulative Impacts

- Options to consider:
 - Deminimis threshold of 5% or 10% remaining ASCAP
 - % impervious cover in watershed
 - % of wetland impacted
 - % forest cover
 - Riparian conditions
 - Number of permits already issued in watershed
 - Number and type of activities/extent of development in watershed

Cumulative Impacts

- How should information regarding cumulative impacts be used in antidegradation decisions?
 - Options/considerations
 - Trigger for review: ensuring multiple de minimis activities do not degrade water quality
 - To create a margin of safety/cumulative cap
 - Identify downward trending waters



Socio-economic Justficiaton (SEJ) and Alternatives Analysis

Federal Anti-Degradation Requirement (40 CFR 131.12)

High quality water shall be maintained unless it can be found by the State that

“ . . . allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located.”

Vermont's Anti-Deg Policy

Vermont's Anti-Deg Policy (1-03.C.2) states:

A limited reduction in the existing higher quality of waters may be allowed only when it is shown that:

The adverse economic or social impacts on the people of the state specifically resulting from the maintenance of the higher quality of the waters would be substantial and widespread;



Vermont's Anti-Deg Policy

These adverse impacts would exceed the environmental, economic, social and other benefits of maintaining the higher water quality; and

There shall be achieved the highest statutory and regulatory requirements for all new or existing point sources, and all cost effective and reasonable accepted agricultural practices, as appropriate for nonpoint source control, consistent with state law.

Vermont's Anti-Deg Policy

- “To the extent that any reduction in quality of high quality waters is allowed, such reduction shall be limited to that which is necessary to comply with subsections C(2) above.”

Assessing “Necessity”

- Requirements that a proposed new or expanded discharge be “necessary” to accommodate important economic or social development implies that at least some examination of alternatives to the proposed activity has occurred.
- States have generally developed a two-step process to generate findings of necessity:
 - Step#1: Addresses necessity through alternative analysis
 - Step #2: Addresses the importance of the social or economic development supported by the activity

Alternatives Analysis

- Some states require an alternatives analysis before the SEJ analysis, some incorporate the analysis into the SEJ and some require it after the SEJ is completed.
- Types of factors that states require to be considered:
 - Pollution prevention
 - Reduction in project scale
 - Water recycling or reuse
 - Process changes
 - Innovative treatment technologies

Alternatives Analysis

- Advanced treatment technologies
- Seasonal or controlled discharges to avoid critical water quality periods
- Improved operation and maintenance of existing treatment systems
- Alternative discharge locations
- Trading

Alternative Analysis

- “Rule of thumb” used by some states: non-degrading or less-degrading pollution control alternatives with costs that are less than 110 % of the costs of the proposed pollution control measures are considered reasonable

SEJ Analysis

- In reviewing the state and EPA guidance re: Tier 2 SEJ analysis, Tetra Tech concluded:
 - Few state guidance documents provide any detail on SEJ
 - When procedures are provided, they are general and qualitative in nature
 - A large percentage of applications may require Tier 2 analysis and SEJ; therefore tests/procedures must be practical to use and review
 - States generally review on a case-by-case basis

Socio Economic Justification

- Determining important economic and social development
 - Boiling down criteria to simple quantitative measures may be inappropriate
 - Best professional judgment and review on a case-by-case basis may be necessary
 - EPA recognizes local considerations necessary in SEJ analysis

Socio Economic Justification

• Considerations

- Changes in local economy
 - tax base, number and types of jobs created, etc.
- Changes in population
- Housing
- Changes in social conditions or services
- Correction of an environmental or public health problem
- Benefits associated with maintaining existing high water quality
- Information provided through intergovernmental cooperation and public participation

Public Participation

- The federal anti-deg rule provides requirements for public participation and intergovernmental coordination when determining whether to allow a lowering of water quality in high quality waters (40 CFR 131.12(a)(2))
- Public participation may be satisfied through:
 - Providing notice and opportunity for public hearing
 - Standards issues may be combined with hearings on environmental impact statements, water management plans, or permits
 - Public must be clearly informed of possible changes in WQ by proposed activity

Stormwater

Cumulative Impacts

- Assessed to determine assimilative capacity
- Possible approaches
 - % impervious cover
 - extent of BMP implementation
 - forest cover
 - washoff load
 - geomorphic condition
 - Biomonitoring

Timing of Tier 2 Analysis

- For Alternatives Analysis, Socio Economic Justification and Public Participation
 - During General Permit/BMP/Regulation adoption process (e.g. Stormwater Manual)
 - Projects that propose a significant decrease in water quality that do not meet the terms of the General Permit and require an individual permit

Alternatives Analysis

- Options for maintaining higher water quality
 - Reduction in project scale
 - Improved operation and maintenance of existing systems
 - Innovative or advanced treatment technologies
 - Alternative discharge locations

Socio Economic Justification

- Difficult to demonstrate for individual projects
 - Large transportation and energy projects can provide the required socio economic justification
 - How do smaller projects meet test?

Public Participation

- During development of a General Permit
- During BMP/Regulation adoption process (e.g. Stormwater Manual)
- During individual permit review

River Management

River Management Program

Alternatives Analysis for:

- stream alterations
 - bridges, culverts, and dams
 - hydropower developments
 - water withdrawals

Avoid - De minimis or no (new) impact

Minimize - Insignificant/Very Limited Reduction in Quality, large scale habitat processes and equilibrium unchanged

Mitigate - Other physical stressors or potential for human-river conflicts reduced or eliminated as part of an alteration project that has an impacts on habitat and equilibrium conditions

SEJ - Project has the necessary and documented social and economic justification

Cumulative Impacts

Maintaining hydrologic continuity and managing streams toward equilibrium reduces overall impacts

Cumulative Impacts are managed and reduced by prioritizing and permitting alternatives along the avoid-minimize-mitigate spectrum in consideration of:

- impacts related to dewatering, flooding, and obstructing aquatic habitat;
- actions which may alter hydrologic and sediment regime processes associated with equilibrium condition (i.e., where large scale habitat processes remain unchanged).

Negative cumulative impacts have and will continue to occur

State and Federal regulatory agencies permit channelization practices where there are no practical alternatives to protect existing public infrastructure or private residential, commercial, or industrial structures. These practices often work against the evolution and maintenance of equilibrium and high quality habitat conditions.

Vermont River Management Program's Avoidance Strategy

Stem the growth and reduce the number of intractable conflicts which lead to significant alterations, disequilibrium, and cumulative impacts to aquatic habitat

1. River Corridor Protection is an essential component of implementing Antidegradation Policy

- a. Incentivize town adoption of fluvial erosion hazard area bylaws
- b. Purchase river corridor easements at critical river attenuation areas

2. Restoration of habitat and stream equilibrium, as promoted through river corridor planning, build resiliency to buffer cumulative impacts

- a. Complete projects identified in river corridor plans
 - 1) Remove structures and landforms that constrain or obstruct equilibrium processes**
 - 2) restore and maintain vertical connectivity between a channel and adjacent floodplains**
 - 3) restore and maintain horizontal connectivity between upstream and downstream**
- b. Support locally desired restoration projects with river corridor protection



Social and Economic Justification

Vermont River Management

De minimis or no significant impact – no SEJ analysis required

Significant impacts – loss of public infrastructure or private residential, commercial, or industrial structures constitutes SEJ

(loss of public and private structures may or may not constitute a substantial and widespread justification, but to deny the protection of these investments creates a draconian standard, where everyone one would have to move out)

Significant impacts – where no loss of public infrastructure or private residential, commercial, or industrial structures would otherwise occur, then a social and economic justification is required.



Public Participation

Vermont River Management

404 General Permit – public notice and comment on the State 401 Water Quality Certification

Stream Alteration Permits – de minimus or insignificant reduction in quality - waiver of 401 certification contained within stream alteration permit, which is posted in town and provided to adjacent property owners

Individual 401 Certifications – public notice and comment on the State 401 Water Quality Certification of significant alterations, hydropower, and large water withdrawal projects

Wetlands



Public Participation

- Every CUD
- 404/401 Review
- Wetland reclassification
- Wetland General Permit

Alternatives Analysis

- Avoid
- Minimize
- Compensate

Cumulative Impacts

- Linear projects – multiple wetlands
- Multiple projects over time to one wetland
- GIS layers in project area: corridors and connectivity
- Watershed scale

Socioeconomic Justification

- Is part of the alternative analysis
- Needs public input/participation
- Is considered when impacts need to be mitigated:
undue adverse impacts
- Denial vs mitigation
- Considered when developing legislation and Rules

Shoreland Encroachment

Shoreland Encroachment Permit

- Jurisdiction over work beyond the mean water level of a lake covers activities including fill, retaining walls, abutments, dredging, docks, pipelines, cables in public water.
- Anti-deg would apply to those projects also requiring a 401 Certification

Shoreland Encroachment Permit

Public notification

- Written notice sent to:
 - Abutting property owners
 - Select Board of the town in which the proposed project is located
 - Other persons as the Dept considers appropriate (biologists, NGOs, etc).
- 10 days for the filing of written comments
- Public Info Meeting is held upon request from a municipality, or 25 or more persons



Shoreland Encroachment Permit

Alternatives Analysis

- Findings that can be used to look at alternatives:
 - Excessiveness for stated purpose
 - Least intrusive feasible alternative
 - Measures to reduce impacts on the public resource

Shoreland Encroachment Permit

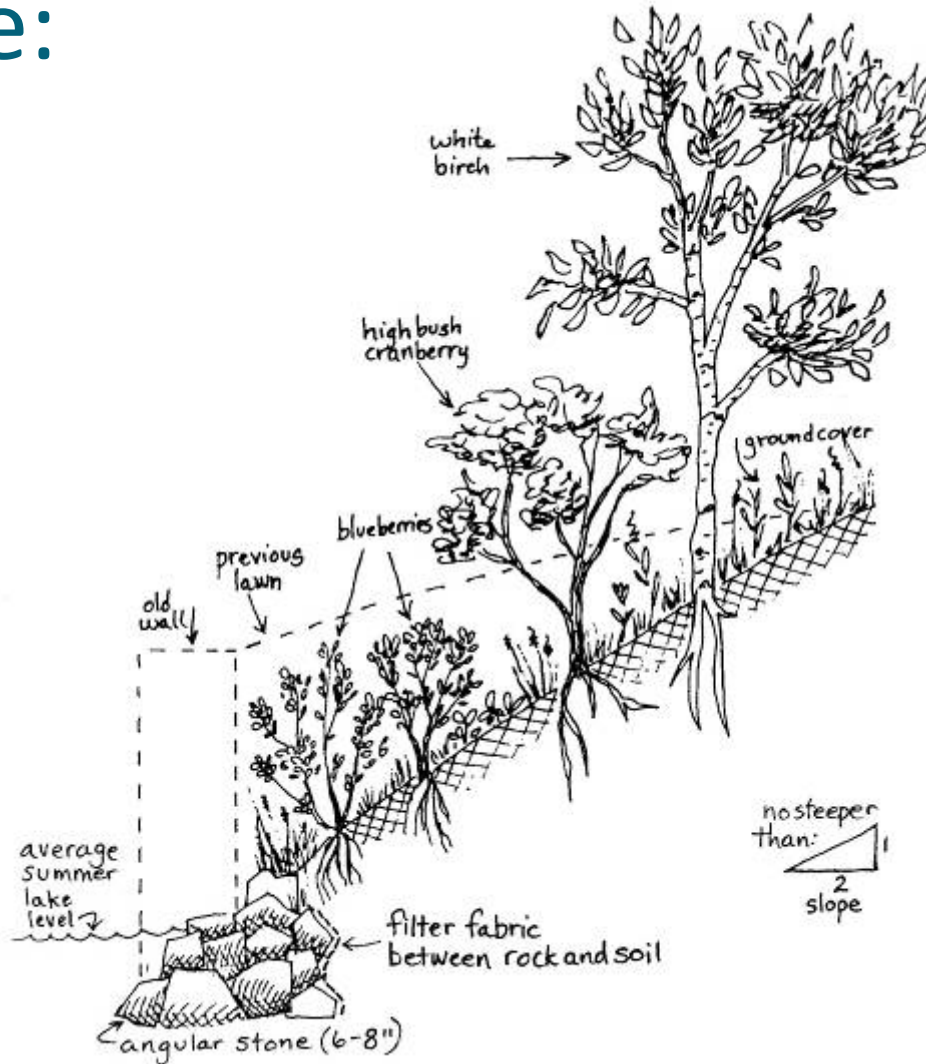
Example:



Sunset Lake
and Burr Pond
road banks: use
of rock toe and
vegetated slope

Shoreland Encroachment Permit

Example:



Alternative to retaining wall

Shoreland Encroachment Permit

Examples

- North Hero Marina: dock shortening thru permit process
- Marble Island Marina: dock bridge in middle to lessen impact on navigation

How does SEP address cumulative impact?

- Statute requires consideration of cumulative impact on uses of project plus existing encroachments
- Project cumulative impact on public good is weighed against public benefit; if public good is negatively affected there must be a greater public benefit to outweigh it
- Currently a subjective analysis

Cumulative Impact

- Navigation (boating)
 - Subjective, as expectations will vary from lake segment to lake segment (harbor area vs. undeveloped; established boat traffic, etc.)
 - Might consider a % surface “influence area” for different types of lake segments

Cumulative Impact

- Statute identifies “public good” values:
 - Water Quality
 - Fish and Wildlife Habitat
 - Aquatic and Shoreline Vegetation
 - Navigation
 - Recreation and Other Public Uses, including fishing and swimming
 - Consistency with the Natural Surroundings
- Each are looked at for cumulative impact

SEP and SEJ

- Describe SEJ-type analysis that is part of public good/public benefit determination
- Examples:
 - Replacing Crown Point Bridge: transportation
 - Route 78 bridge: aquatic biota and water quality
 - Marinas: must provide public use/benefit such as gas pump, sanitary pump out, slips available to transient users, etc

Shoreland Encroachment Permit Related Education and Outreach

- Website
- Workshops
- Handouts
- Technical assistance
- Work with partners
- *Out of the Blue* newsletter



Vermont Lake Protection Series #3 Go Wild!



The value and importance of well-vegetated lakeshores cannot be overstated. A mix of trees, shrubs and open groundcover is what is known as a buffer strip. Starting from scratch, lake shoreline camps would need to set back 125 feet from the lake with a 100-foot wide undisturbed vegetated buffer zone along the shore. But many camps have been in place for decades, built long before we understood the advantages of natural vegetation along water. The good news is you can make improvements to your camp lot to benefit the lake environment and help protect your favorite lake at the same time. This publication covers:

- Why Buffer with Buffers?
- The Easy Way to a New Buffer: Go Wild
- Replacing Old Walls With New Banks
- Planting a New Buffer
- Creating a Planting Plan
- Choosing the Right Plants
- Planting and Caring for a Buffer

Why Buffer with Buffers?
Privacy – Well-developed vegetation between the lake and your camp will offer you greater privacy and relaxation.
Scenic value – Everyone enjoys looking at lakes, think how your property looks from the lake. Most people agree vegetation enhances beauty.
Bird watching – A well-vegetated shore offers the opportunity to attract and observe birds and other wildlife.
Shoreline stability – A naturally vegetated shore provides long-term protection of your property from wave or ice erosion. Retaining walls are expensive, breakdown over time and just redirect the wave or ice energy elsewhere on the lakeshore.
Lake ecology – Shoreland vegetation provides an important aspect of lake ecology, that of the interaction between the water and land environment. Many birds nest along shorelines, some water creatures crawl into leaf litter to overwinter or lay eggs, and insects feed from trees to become fish food. In addition, fallen branches and trees provide important fish habitat "structure" in the shallow areas.
Filtration of silt runoff – Storm runoff from your lawn or driveway can be filtered and absorbed by natural vegetation and its root layer, preventing pollutants from reaching the lake.
Protect property values – Buffers are the single most important water protection measure, and studies have clearly shown there is a link between a property's value and closeness of a lake's water.



Vermont Lake Protection Series #3

